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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,162	12/02/2003	Simon Robert Walmsley	PEA02US	6708

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EXAMINER	
UHLENHAKE, JASON S	

ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/727,162	WALMSLEY ET AL.	
	Examiner	Art Unit	
	Jason Uhlenhake	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Becerra et al (U.S. Pat. 5,675,365)

Becerra discloses:

- ***regarding claim 1***, a printer controller for supplying dot data to a printhead (Column 4, Lines 33 - 50)
- at least a first printhead module having a plurality of rows of printing nozzles (Column 4, Lines 7 - 14)
- the printer controller being configured to order and time (Column 8, Lines 25 – 45) the supply of the dot data to the first printhead module such that a relative skew between adjacent rows of printing nozzles, in a direction normal to direction of printing, is at least partially compensated for (Column 1, Lines 30 – 43; Column 3, Lines 39 – 53; Column 7, Lines 47 - 67)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4, 5, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becerra (U.S. Pat. 675,365) in view of Askren (U.S. Pat. 6,350,004).

Becerral discloses all of the claimed limitations except for the following:

- ***regarding claim 4***, wherein the printer controller is configured to compensate for the skew by introducing a relative delay into the dot data
- ***regarding claim 5***, wherein the printhead is configured to print the dots at a predetermined spacing across its width, and wherein the delay introduced by the printer controller equated to an integral multiple of the spacing
- ***regarding claim 12,*** wherein the printhead is a page width printhead

Askren discloses:

- ***regarding claim 4***, wherein the printer controller is configured to compensate for the skew by introducing a relative delay into the dot data (Column 2, Lines 50 - 57), for the purpose of improving the quality of printing.
- ***regarding claim 5***, wherein the printhead is configured to print the dots at a predetermined spacing across its width, and wherein the delay introduced by the printer controller equated to an integral multiple of the spacing (Column 2, Lines 44 – 60), for the purpose of improving the quality of printing.
- ***regarding claim 12,*** wherein the printhead is a page width printhead (Column 1, Lines 25 – 28), for the purpose of increasing printing speed.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of the printer controller is configured to compensate for the skew by introducing a relative delay into the dot data; wherein the printhead is configured to print the dots at a predetermined spacing across its width, and wherein the delay introduced by the printer controller equated to an integral multiple of the spacing; wherein the printhead is a page width printhead as taught by Askren into the device of Becerra et al. The motivation for doing so would have been to improve the quality of printing and increase the printing speed.

Claims 2, 15, and16 are rejected under 35 U.S.C. 103(a) as being unpatentable Becerra et al (U.S. Pat. 675,365) in view of Dings et al (U.S. Pub. 2003/0218645)

Becerra et al discloses all of the claimed limitations except for the following:

- ***regarding claim 2***, the printer controller is configured to at least partially compensate for the relative skew between adjacent rows.
- ***regarding claim 15***, at least partially compensate for any relative skew between adjacent rows of the nozzles
- ***regarding claim 16***, configured to compensate at least partially for a plurality of potential relative skews.

Dings et al discloses the following:

- ***regarding claims 2, 15, and 16***, a printer controller that is configured to compensate at least partially for plurality of relative skews (Paragraph 0013). For the purpose of accurately delivering liquid and improving the quality of printing.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching to configure the print controller to compensate at least partially for a plurality of relative skews as taught by Dings et al into the device of Becerra et al. The motivation for doing so would have been to accurately deliver liquid and improve the quality of printing.

Claims 3, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becerra et al (U.S. Pat. 675,365) in view of Hackleman et al (U.S. Pat. 5,719,602).

Becerra et al discloses all of the claimed limitations except for the following:

- ***regarding claim 3,*** wherein the relative skew between each of the plurality of the sets of the adjacent rows is the same

- ***regarding claim 7,*** wherein at least one printhead module includes adjacent rows, configured to print the same ink and the dot data is shifted serially through the first of the rows then through the second of the rows

Hackleman et al discloses:

- ***regarding claim 3,*** wherein the relative skew between each of the plurality of the sets of the adjacent rows is the same (Column 4, lines 17 – 31). The

purpose would have been to provide a system for compensating for skew of a printhead nozzle and improving the quality of printing.

- ***regarding claim 7,*** wherein at least one printhead module includes adjacent rows, configured to print the same ink and the dot data is shifted serially through the first of the rows then through the second of the rows (Column 5, lines 59-67). The purpose would have been to provide a system for compensating for skew of a printhead nozzle and improving the quality of printing.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of regarding claim 3, the relative skew between each of the plurality of the sets of the adjacent rows is the same; regarding claim 7, at least one printhead module includes adjacent rows, configured to print the same ink and the dot data is shifted serially through the first of the rows then through the second of the rows; regarding claim 12, wherein the printhead is a page width printhead as taught by Hackleman et al into the device of Becerra et al. The motivation for doing so would have been to provide a system for compensating for skew of a printhead nozzle and improving the quality of printing.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Becerra et al (U.S. Pat. 675,365) as modified by Hackleman et al (U.S. Pat. 5,719,602) and further in view of Kamoshida et al (U.S. Pub. 2002/0075339).

Becerra et al as modified by Hackleman et al discloses all of the claimed limitations except for the following:

- ***regarding claim 8***, data is shifted serially through the first rows in a first direction then looped back through the second of the rows in a second direction opposite the first.

Kamoshida et al discloses the following:

- ***regarding claim 8***, data is shifted serially (Paragraphs 0026, 0086) in a first direction then looped back through in a second direction opposite of the first (Paragraphs 0005, 0011). The feeding of the paper in the opposite direction for data to be scanned as taught by Kamoshida et al is the same concept as looping back through a second pair of nozzle rows in a opposite direction until all data has been supplied.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of the serially shifted data in a first direction and looped back through a second direction opposite of the first as taught by Kamoshida et al into the device of Becerra et al as modified by Hackleman et al. The motivation for doing so would be to improve the efficiency of the printing mechanism and thus improving the quality of printing.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Becerra et al (U.S. Pat. 675,365) as modified by Hackleman et al (U.S. Pat. 5,719,602) and further in view of Walmsley (U.S. Pat 6,805,419).

Becerra et al as modified by Hackleman et al discloses all of the claimed limitations except for the following:

- ***regarding claim 9***, wherein the first and second rows are configured to print odd and even dots respectively to supply the one or more first rows with odd dot data and the one or more second rows with even dot data.

Walmsley discloses the following:

- ***regarding claim 9***, rows configured to print odd and even dots respectively to supply the one or more first rows with odd dot data and the one or more second rows with even dot data (Column 14, lines 52-61).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of the rows configured to print odd and even dots respectively as taught by Walmsley into the device of Becerra et al as modified by Hackleman et al. The motivation for doing so would have been to improve the quality of printing

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Becerra et al (U.S. Pat. 675,365) as modified by Hackleman et al (U.S. Pat. 5,719,602) and further in view of Dings et al (U.S. Pub. 2003/0218645)

Becerra et al as modified by Hackleman et al discloses all of the claimed limitations except for the following:

- ***regarding claim 10***, relative skew between the first and second rows of each pair of rows in a direction normal to printing at least be partially compensated for

Dings et al discloses the following:

- ***regarding claim 10***, relative skew between the first and second rows of each pair of rows in a direction normal to printing at least be partially compensated for (Paragraph 0013).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of relative skew between the first and second rows of each pair of rows in a direction normal to printing at least be partially compensated for as taught by Dings et al into the device of Askeren as modified by Hackleman et al. The motivation for doing so would have been to accurately deliver liquid and improve the quality of printing.

Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becerra et al (U.S. Pat. 675,365) in view of Silverbrook (U.S. Pub. 2003/0103106).

Becerra et al discloses all of the claimed limitations except for the following:

- ***regarding claim 11***, printhead module configured to print a plurality of independent inks, each row is configured to print in one of the inks, and configured to supply each of the inks to at least one row
- ***regarding claim 13***, comprising a plurality of printhead modules.

Silverbrook discloses the following:

- ***regarding claim 11***, a printhead module configured to print a plurality of independent inks, each row is configured to print in one of the inks, and configured to

supply each of the inks to at least one row. (Paragraphs 0031 – 0039). For the purpose of improving printing speed and the quality of printing.

- ***regarding claim 13***, a plurality of printhead modules (Paragraph 0406). For the purpose of improving printing speed and the quality of printing

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of printing a plurality of independent inks, each row configured to print in one of the inks, and a plurality of printhead modules as taught by Silverbrook into the device of Becerra et al. The motivation for doing so would be to improve printing speed and quality of printing.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Becerra et al (U.S. Pat. 675,365) as modified by Silverbrook (U.S. Pub. 2003/0103106) as applied to claim 1 above, and further in view of Usui et al (U.S. Pat. 6,874,863).

Becerra et al discloses all of the claimed limitations except for the following:

- ***regarding claim 14***, printhead modules are of mutually unequal length, configured to order and time the supply of the dot data to compensate for the unequal length.

Usui et al discloses the following:

- ***regarding claim 14***, printhead modules are of mutually unequal length, configured to order and time the supply of the dot data to compensate for the unequal length (Figure 6A U1,U2, U3, Column 9 lines 7-17).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of mutually unequal length of printhead modules and configured to order and time the supply of dot data to compensate for the unequal length as taught by Usui et al into the device of Becerra et al as modified by Silverbrook. The motivation for doing so would be to have the ability to use the printhead module to supply data onto various sizes of paper.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Becerra et al (U.S. Pat. 675,365) in view of King et al (U.S. Pat. 6,604,808).

Becerra et al discloses all of the claimed limitations except for the following:

- ***regarding claim 17***, configured to compensate at least partly for a fixed amount of the skew.

King et al discloses the following:

- ***regarding claim 17***, to compensate at least partly for a fixed amount of the skew (Column 5, lines 11-19).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of compensating for a fixed amount of the skew as taught by King et al into the device of Becerra et al. The motivation for doing so would have been to correct known skew errors improving the quality of the printing.

Claims 6 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becerra et al (U.S. Pat. 675,365) as modified by Askren (U.S. Pat. 6,350,004) as applied to claim 1 above, and further in view of Morita et al (U.S. Pat. 5,774,145).

Becerra et al as modified by Askren discloses all of the claimed limitations except for the following:

- ***regarding claim 6***, wherein nozzles of at least one of the rows of one printhead modules are positioned outside the printable region due to skew between adjacent rows of the nozzles, and nozzles outside the printable region do not print
- ***regarding claim 18***, wherein nozzles of the printhead are disposed in a printable region of the printhead, and at least one logical nozzle located outside the printable zone that can accept data but is not capable of printing.

Morita et al discloses the following:

- ***regarding claims 6***, wherein nozzles of at least one of the rows of one printhead modules are positioned outside the printable region due to skew between adjacent rows of the nozzles (Column 3 lines 50-63). For the purpose of ensuring that no color mixture occurs and the operation is stable.
- ***regarding claim 18***, wherein nozzles of the printhead are disposed in a printable region of the printhead, and at least one logical nozzle that is located outside of the printable zone and can accept data but is not capable of printing (Column 2 Lines 25-67, Column 3). The introduction of a relative delay into the dot data supplied, such that dot data is supplied to the correct nozzles is seen as a purpose and not a function

of the device. For the purpose of ensuring that no color mixture occurs and the operation is stable.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of one printhead module positioned outside the printable region due to skew between adjacent rows of the nozzles, the logical nozzle outside of the print area that can accept data but is not capable of printing as taught by Morita et al into the device of Beccera et al as modified by Askren. The motivation for doing so would to ensure that no color mixture occurs and the operation is stable.

Response to Arguments

Applicant's arguments filed February 27, 2006 have been fully considered but they are not persuasive. Please see the above rejections regarding Becerra (U.S. Pat. 675,365). Becerra et al discloses a printer controller being configured to order and time the supply of dot data and compensating for a skew of adjacent rows of printing nozzles. The nozzles/ejectors are located on the nozzle plate/printhead, so a correction of the adjacent nozzles/ejectors can occur when a correction of the nozzle plate/printhead is performed, as disclosed in Becerra et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Uhlenhake whose telephone number is (571) 272-5916. The examiner can normally be reached on Monday - Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JSU
March 24, 2006

K. FEGGINS
PRIMARY EXAMINER
3/06